after filtration shall have been completed:—secondly, to exhaust the residue with sulphuric æther; the ethereal solution contains a fatty acid and ptyalin. It is to be allowed to evaporate spontaneously; and, thirdly, the residue left by evaporation is to be placed upon a filter, and acted upon by distilled water, which dissolves the ptyalin and leaves the fatty acid. If the aqueous solution be carefully evaporated to dryness, the "salivary matter" will be obtained in a pure state. Ptyalin, as thus prepared, is a yellowish-white, adhesive, and nearly solid matter, neither acid nor alkaline, readily soluble in æther, alcohol, and essential oils, and more sparingly soluble in water. It alone possesses the characteristic odour of saliva; it is unaffected by galvanism, and by most of the reagents which coagulate albumen; it is abundantly precipitated by sub-acetate of lead and by nitrate of silver; feebly so by acetate and nitrate of lead and tincture of galls, uninfluenced by bichloride of mercury and strong acids; the latter considerably heighten its proper odour and impair its solubility, whilst alkalies render it more soluble, and give it the smell of mucus. Moderate heat and oxygen gas also increase its odour; but intense heat or cold diminishes or entirely destroys it. At a suitable temperature ptyalin may be preserved for any length of time without risk of decomposition. The salivary fluid from which ptyalin has been removed by filtration, possesses a sickly mucous smell, decomposes much sooner than ordinary saliva, and in the process of decay invariably evolves ammonia. If this fluid be heated, the mucous smell will be increased until the evaporation shall have been continued nearly to dryness, when a slight salivary odour may be recognised, due to a portion of ptyalin being liberated from the mucus with which it was previously in combination.

Ptyalin may be regarded as the true source of salivary odour, though it does not impart any smell to a quantity of water equal to the saliva from which it was extracted. It is liable to much variation in quantity, colour, consistency, and smell; and though I have been unable, from experimental inquiry, to discover in it any special physiological activity, yet have I observed that its alteration, or its absence, is invariably characteristic of a depraved condition of the saliva; and (as I shall hereafter endeavour to prove) the various morbid states of this fluid being representative of disease in the system or in its secretions, the examination of the ptyalin may be advantageously suggested as an addition to our other means of diagnosis. The obligations of active and extensive practice of course unfit the physician for a minute inquiry into the pathology of animal secretions; but the process which I have submitted for the separation of ptyalin, requiring but little of either time or skill, the apology of engagement or unfitness can scarcely be received in exchange for neglecting this branch of professional inquiry; and for introducing a novelty into the department of diagnosis, I would repeat the words of an elegant writer, and say, "The proportion in which we multiply our means of accurate observation is directly indicative of our distance from empiricism and imposture." I shall consider the morbid varieties of ptyalin when discussing the pathology of saliva.

(To be continued.)

of crystallisation; the plan, therefore, is to evaporate the ethereal solution to dryness, and if any sulphocyanide of potassium be present, it will crystallise in long needles, which, with the lactate of potass, will soon run into liquidity. If a few drops of distilled water be gently added, these saline matters will be removed, and the ptyalin left in a pure state. It is advisable that the water should not be long in contact with the ptyalin, lest any of it should be dissolved. After having poured off the water, the residue must be evaporated to dryness; and if it again deliquesce, it should be exhausted with water as before. One process, however, is generally sufficient.

REMARKS ON SOME

STATEMENTS IN MR. SAMPSON'S PAPERS

ON THE

APPLICATION OF PHRENOLOGY

TO THE

TREATMENT OF CRIMINALS,

LANCET, NOS. 18, 19.

To the Editor of THE LANCET.

SIR,—As Mr. Sampson's late papers on Phrenology in relation to Criminal Jurisprudence appear to me, and, I doubt not, to others of your readers, to contain statements not less dangerous than paradoxical, I trust you will allow me briefly to occupy your pages while endeavouring to prove that they are so; as it is desirable that through the same channel by which error (if error there be) is disseminated, the effects of that error should, if possible, be neutralised. I apprehend that a single argument which I shall bring to bear will, with persons accustomed to moral investigation and discussion, and to a study of the harmony and adaptation every where manifested in the intellectual constitution of man, furnish an irrefragable answer to Mr. Sampson's statements, and an insurmountable objection to some of the most fundamental doctrines of phrenology.

The general inference from Mr. Sampson's statements and reasonings is, that a man's propensity to crime is wholly or in a great

measure, so far as he himself is concerned, accidental and involuntary, and that he is no more responsible for the unfortunate tendency he may labour under to violence, excess, &c., than he is for a congenital bad habit of body, or for acquired disease in any organ.

Now, the simple and conclusive answer to such gratuitous and dangerous theory as this is, that had nature, in any case, constituted a man so as that he was unavoidably, because physically, prone to crime, and so as that the strength of his volition was not equal, as a counterpoise, to that of his passions or propensities, she would, *at the same time* (all analogy leads us to conclude), have withheld from him the *consciousness* of crime, and the sentiments of self-praise and self-blame. There would most evidently be gross incongruity and gross injustice in making a man sensible of the distinctions of good and evil, and perfectly aware when he was forsaking the one and abandoning himself to the other; yet, at the same time, sending him into the world with a congenital disability (dependent on physical conformation) of preferring the good and eschewing the evil. In no other part or arrangement of either the moral or physical creation do we observe any such monstrous and palpable inconsistency—any such manifest and notorious departure from harmonious adaptation. Now, as no person who has the slightest pretensions to candour or common sense will affirm that men, even the most criminal, ever lose their *consciousness* that they are acting criminally, or, at least, lose this consciousness in anything like the same proportion in which they may commit crime,—and this consciousness being the test and measure of a man's possession of volition in regard to his actions, and therefore of his responsibility,—and as (according to my former argument) it would be obviously an injustice and incongruity repugnant to all our ideas of harmonious adaptation in nature and equity in the Deity, that men should be responsible, if constituted congenitally, subject to the control of an original and physical necessity, it follows that Mr. Sampson's theory is ill founded; and that the influence which, as assumed by phrenologists, the brain exerts over the mind, though possibly it may exist in *some* degree, yet does not exist to the extent, nor, probably, operate in the manner which they suppose. This argument, which I shall not here seek further to illustrate or apply, will, I apprehend, if properly managed, be found to be conclusive against the chief, and, at the same time, the most improbable and dangerous doctrines of phrenology. It very directly proves the folly of modifying our jurisprudence in conformity with phrenology, as proposed by the abettors of that system, since it would be the last degree of absurdity for the laws to absolve a man of crime *whose own internal feelings charged him not only with being criminal, but with being voluntarily so.*

I shall conclude this paper with referring to three instances of what I shall call *pseudo-analogies:* two of which occur in Mr. Sampson's paper; the third in Mr. Combe's work on America.

First. Mr. Sampson seeks to establish an analogy between mental obliquity and bodily disease. "Why," he asks, "do we not treat irregularities of mind in the same way that we treat all other physical disorders?" Now, our simple reply is, that while moral error is accompanied with a *consciousness* on the part of the delinquent that he is doing wrong, bodily disease is accompanied with no such consciousness. This shows there is no analogy between the two cases, and destroys the argument which Mr. Sampson would seek to found on that supposed analogy as to the applicability of phrenology to jurisprudence.

Secondly. Mr. Sampson speaks of a morbid state or action of the brain as being a cause of moral error. Now, I would ask, does this morbid condition of the brain partake of the nature of any other *known* form of cerebral disease? It cannot do so, for it is accompanied with none of the ordinary signs of disease of the brain, the greatest criminals having their brains as sound, physically considered, as those of the most virtuous men. What, then, is the nature of this morbid state or action of the brain; or, rather, has it any existence? and is it not a mere figment of phrenologists?

Lastly. Mr. Combe gravely informs us, that when examining the head of a girl who, by an accident, had lost that part of the skull which covers the organs of self-esteem and love of approbation, he found, on applying his hand over these organs, and so guiding the conversations as to call the corresponding faculties into exercise, that "*vivid movements*" took place!!! *Oh! credat Judæus, sed non ego!* Perhaps a more striking instance of a man of acknowledged talent, being led into a hasty and laughably incorrect analogy, is not on record. We have no reason to believe that the *intensive* states of the brain (of which, indeed, we know nothing) have the slightest resemblance to those of *muscular* action, which must have been present in Mr. Combe's imagination when he saw or fancied he saw the phenomenon he relates; nor have we any reason for believing that the brain has any movements at all, save such as are communicated to it by the arteries directly, and indirectly by the effects of respiration on the arteries, or the cerebral vessels generally. I am, Sir, your obedient servant,

ROBERT DICK.

London, Feb. 18, 1842.